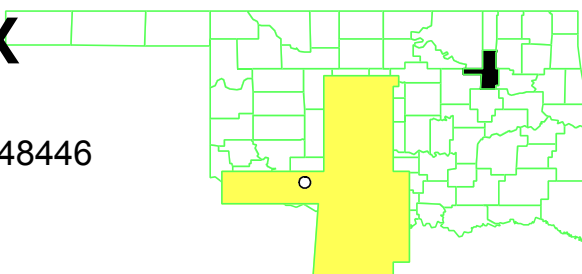


SAND SPRINGS PETROCHEMICAL COMPLEX OKLAHOMA

EPA ID# OKD980748446

EPA REGION 6
CONGRESSIONAL DISTRICT 01
Tulsa County
Sand Springs

Updated: June 2003



Site Description

- Location:** ● The site is at the location of the Old Sinclair Refinery in Sand Springs, west of Tulsa, Tulsa County, Oklahoma, adjacent to the Arkansas River.
- Population:** ● The population of the greater Tulsa metropolitan area is 376,000; the population of Sand Springs is approximately 15,000.
- Setting:** ● Nearest residence is within 1/2 mile.
● Drinking water wells in use are within 1/2-mile of site, although upgradient.
● The site encompasses approximately 200 acres and includes 2 unlined acid sludge pits (about 10 feet deep), and an abandoned solvents and waste oil recycling facility.
- Geology:** ● The Sand Springs Superfund site is underlain by approximately 30 feet of sand, which is underlain by shale.
● Shale thickness appears to exceed 100 feet.
● An alluvial aquifer beneath the site appears to flow toward the Arkansas River.

Present Status and Issues

During routine O&M in June 2001 seeps of black sludge were observed near the former acid sludge disposal pit along the bank of the Arkansas River. An investigation of the seeps was conducted in June 2002 by ARCO, with EPA performing oversight. Several seeps were observed at the site; some seeps appeared to have flowed to the surface, while others were exposed as layers of contamination along the cut bank. Test pits excavated near the former sludge pit encountered significant sludge and contaminated soil at depths to approximately 14 feet below ground surface. ARCO estimates an additional 5,000 cu. yds of such material may be present. There is also some concern with the stability of the river bank in this area. The shoreline is being eroded along this portion of the river, as significant erosional features were observed. In November 2002, ARCO submitted an assessment report and analytical results for the test pit investigation, along with a recommendation for cleanup. The EPA is currently evaluating ARCO's report.

Wastes and Volumes

- Principal pollutants at the site are found in several media:
 - Ground water: 1,1,1-trichloroethylene, 36 ppm (parts per million)
1,1-dichloroethene, 6 ppm
 - Sediments: trichloroethylene, 700 ppb (parts per billion)
 - Acid pits waste: hydrocarbons and mineral acids, in the percent level (i.e., thousands of ppm)
- The estimated waste volume for the sludge pits is 125,000 cubic yards; for the Glen Wynn facility is 5,000 cubic yards of sludge and contaminated soils.

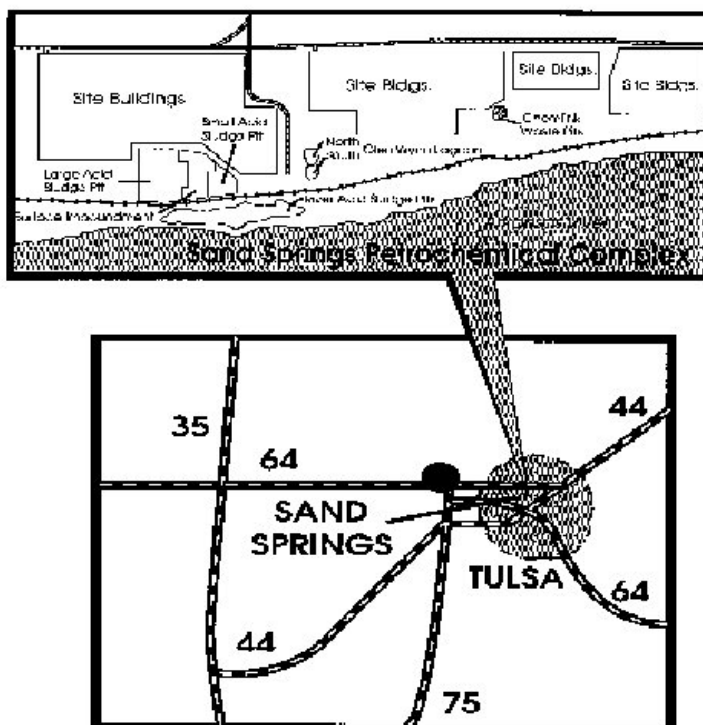
Removals, Site Assessment and Ranking

NPL LISTING HISTORY

Site HRS Score: 28.86
Proposed Date: 9/08/83
Final Date: 6/10/86
NPL Update: No. 1

- One potentially responsible party (or PRP), ARCO, stated that no observed release was documented, that the ground water score should have been based on route characteristics, and that targets may have been considerably less than listed in the Hazardous Ranking System (HRS) package.
- ARCO also believed a score of 45 for observed release to surface water was unwarranted.
- A drum and tank removal was performed 3/84 by the PRPs under an Administrative Order.

Site Map and Diagram



Site History

- The Sand Springs site operated as a refinery from the turn of the century through late 1940s.
- The site has since been developed as an industrial area consisting of chemical manufacturers, solvent recovery operations, a transformer salvage/recycler and various other industries.
- August 1984, with EPA oversight, some of the Responsible Parties (RPs) removed drums and tanks from the site.
- EPA removed 400 drums of hazardous material, repaired the fence, sampled and analyzed pits, on site soil, and on site monitoring wells.
- The State of Oklahoma conducted the remedial investigation/feasibility study (RI/FS).
- Chemical solidification/stabilization (CSS) treatability studies were conducted in late 91.
- EPA and Oklahoma State Department of Health (OSDH) {now Oklahoma Department of Environmental Quality (ODEQ)} evaluated CSS data and reviewed CSS and incineration preliminary designs in Spring 1992.
- August 1992 - Glen Wynn remediation initiated; completed November 1992.
- October 1992 - EPA/ODEQ reviewed of CSS Technology Selection Report.
- February 1993 - CSS selected as site remedy.
- July 1993 - Commenced landfill construction.
- April 1994 - CSS treatment of waste began.
- January 1995 - Complete excavation and neutralization of all waste at site.
- April 1995 - Cap installation began
- August 1995 - Treatment complete and landfill closed.
- August 29, 1995 - Remedial Action Completion Ceremony held.
- October 1995 - Ground Water quarterly sampling and Operation and Maintenance (O&M) began.
- September 1997 - A Closeout Report signifying end of construction was signed on September 30, 1997.
- August 1999 - A Notice of Intent to Delete (NOID) the site was submitted for public comment. The NOID was published in the Federal Register on August 2, 1999. No significant public comments were received during the 30 day comment period.
- March 2000 - The site was deleted from the NPL on March 17, 2000 (Federal Register / Vol. 65, No. 53/Friday, March 17, 2000/ page 14475).
- September 2000 - The first Five-Year Review was completed. The remedy was found to be protective.
- June 2002 - Test pits were excavated along bank of Arkansas River to investigate the nature and extent of seeps of black sludge observed near ARCO's former acid sludge disposal pit. Significant volume of sludge (estimated 20,000 cu. yds.) were discovered between the former pit and the Arkansas River. EPA is currently evaluating the results of the investigation.

HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

- Potential direct contact with acid sludge pits and surface impoundments.
- Contamination of ground water is possible from the pits. Surface water has been contaminated.

Record of Decision

Signed: September 29, 1987 (Source)
September 28, 1988 (Ground Water)

- The Source Control Record of Decision (ROD) addressed the Glen Wynn facility and selected

incineration of sludge from pits as a remedy, with solidification of remaining wastes if proven equally environmentally effective as incineration during the Remedial Design.

- This ROD addressed all surface liquids, sludges, and heavily contaminated soils (within EPA's removal criteria).

Ground Water:

- This aspect of the site was addressed in another ROD signed on 6/28/88, which chose "No Action" on the minimally contaminated soil or ground water with long-term monitoring following completion of the Source Control Operable Unit.

Soil Treatment:

- After reviewing all available information, EPA judged that on-site thermal destruction (incineration) of wastes appears to meet more statutory selection criteria than the other remedies evaluated, but has significant implementation problems.
- During the public comment period, ARCO Petroleum Products Company, one of the PRPs for this site, made written and verbal proposals for a privately financed remedy for the site.
- The most effective of the ARCO proposals provided for:

- 1) The excavation and off site thermal destruction of sludges, at least to the sludge/soil interface from the portion of the site identified as the North and South Glen Wynn Lagoons.
- 2) Solidification and/or stabilization of all remaining sludges and containment of the resulting matrix in a hazardous waste Resource Conservation and Recovery Act (RCRA) cell constructed on-site. This cell (or cells) would meet the minimal technological requirements of subtitle C of the Solid Waste Disposal Act.
- 3) As part of the Remedial Design, ARCO would demonstrate that the solidification technology would meet EPA-approved criteria. Those criteria would include both chemical and physical testing requirements. Should the solidification technology fail the criteria, thermal destruction would be employed as the remedy for the above mentioned operable unit.
- 4) There would be no liability release for the site or from future maintenance and monitoring.
- 5) Repair or restoration of the RCRA cell to ensure no migration from the unit or destruction or treatment of all or a portion of its contents, as EPA deems appropriate, should monitoring show that the solidification and/or stabilization remedy fails.

Other Remedies Considered

Reasons Not Selected

-----SOURCE CONTROL OPERABLE UNIT-----

- | | |
|--|---|
| 1. "No Action" | Not protective of human health and the environment |
| 2. On-site solvent extraction | Not protective of human health and the environment |
| 3. Off-site thermal destruction | Not cost-effective |
| 4. Off-site solvent extraction | Not cost effective |

-----GROUND WATER OPERABLE UNIT-----

1. In situ bioreclamation	Not a proven technology; not cost-effective
2. Biological treatment	Not a proven technology; not cost-effective
3. Physical treatment	Not cost-effective

- Remedial Design (RD) was postponed because the judge would not enter Consent Decree.
- The acid sludge pits were excavated to the sludge/soil interface and one additional foot of soil was excavated.
- The material was then treated by the CSS process and placed in the on-site landfill.
- In addition, all soils containing 100 ppm benzo(a)pyrene or more, were treated by the CSS process.
- The Glen Wynn lagoon sludges and soils were excavated, transported off-site, and incinerated at a permitted hazardous waste facility.

Community Involvement

- Community Involvement Plan: Developed 8/84, revised 4/91 in conjunction with PRPs
- Open houses and workshops: 9/91 and 7/92 (RD/RA Updates), 1/95
- Proposed Plan Fact Sheet and Public Meeting: Source Control: 7/87; Ground Water: 5/88
- ROD Fact Sheet: Source Control: 3/88; Ground Water: 6/88
- Milestone Fact Sheets: 9/91 (RD/RA Status Update); 7/92; 3/94; 12/94
- Special project review and site tour held 1/10/95.
- Citizens on Mailing List: 136
- Constituency Interest: Sulfuric Acid and waste sludge seeping into the Arkansas River
- Site Repository: Page Memorial Library, 6 East Broadway, Sand Springs, OK 74063

Technical Assistance Grant

- Availability Notice: 2/89
- Letters of Intent Received: None
- Final Application Received: N/A
- Grant Award: N/A
- Current Status: No apparent citizen TAG interest despite EPA outreach

Contacts

- **Remedial Project Manager (EPA):** Mark Purcell, 214.665-6707, Mail Sta. 6SF-LP
- **State Contact:** Dennis Datin, 405.271-7097, ODEQ
- **Community Involvement (EPA):** Mark Purcell, 214.665.6707, Mail Sta. 6SF-LP
- **Attorney (EPA):** Paul Wendel, 214.665.2136, Mail Sta. 6RC-S
- **EPA Region Ombudsman:** Arnold Ondarza, 800.533.3508
- **State Coordinator (EPA):** Roberta Hirt, 214.665.8079, Mail Sta. 6SF-AO
- **Prime Contractor:** RI/FS - John Mathes & Assoc.
RD/RA - Morrison-Knudsen (PRP - ARCO)

Benefits

The cleanup at the Sand Springs Petrochemical Complex mitigated environmental risks from 208,000 cubic yards of contaminated soils, sludge, concrete and debris by placing it in a RCRA Title C on-site landfill, and made several miles of the Arkansas River safer for recreation uses.